

M67001.AR.006888
MCB CAMP LEJUENE
5090.3a

VALIDATED DATA PACKAGE, SI0808, MCB CAMP LEJUENE NC
3/25/2015
ENVIRONMENTAL DATA SERVICES

**DATA VALIDATION SUMMARY REPORT
MCB CAMP LEJEUNE, NORTH CAROLINA**

Client: CH2M HILL, Inc., Virginia Beach, Virginia
SDG: SI0808
Laboratory: Katahdin Analytical Services, Scarborough, Maine
Test America, Burlington, Vermont
Site: MCB Camp Lejeune, UXO-06, CTO-WE4B
Date: March 25, 2015

EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	MR06-SS90OC-15A	SI0808-1/2	Soil
1MS	MR06-SS90OC-15AMS	SI0808-1/2MS	Soil
1MSD	MR06-SS90OC-15AMSD	SI0808-1/2MSD	Soil
2	MR06-SS90-IC-15A	SI0808-3/4	Soil
3	MR06-SS90D-IC-15A	SI0808-5/6	Soil
3RE*	MR06-SS90D-IC-15ARE	SI0808-6RE	Soil
4	MR06-EB020615	SI0808-7	Water

* - Explosives only

A full data validation was performed on the analytical data three soil samples and one aqueous equipment blank collected on February 6, 2015 by CH2M HILL at the MCB Camp Lejeune in North Carolina. The samples were analyzed under the Environmental Protection Agency (USEPA) "Test Methods for the Evaluation of Solid Waste, USEPA SW-846, Third Edition, September 1986, with revisions".

Specific method references are as follows:

<u>Analysis</u>	<u>Method References</u>
Explosives	USEPA SW-846 Method 8330B
Metals/Mercury	USEPA SW-846 Method 6010C/7471B
Perchlorate	USEPA SW-846 Method 6850 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods, the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008;
- The USEPA "Contract Laboratories Program National Functional Guidelines for Inorganic Superfund Data Review," January 2010;
- and the reviewer's professional judgment.

The following items/criteria were reviewed for this report:

Organics

- Holding times and sample preservation
- Initial and continuing calibration summaries
- Method blank and field blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample (LCS) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

Inorganics

- Holding times and sample preservation
- ICP/MS Tuning
- Initial and continuing calibration verifications
- Method blank and field blank contamination
- ICP Interference Check Sample
- Laboratory Control Sample (LCS) recoveries
- Matrix Spike Analysis
- Duplicate Sample Analysis
- ICP Serial Dilution
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Overall Usability Issues:

There were no rejections of data. Overall the data is acceptable for the intended purposes as qualified for the deficiencies detailed in this report.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

Explosives

Holding Times

- All samples were extracted within 7 days for water samples and 14 days for soil samples and analyzed within 40 days for all samples except the following.

Sample ID	Date Sampled	Date Extracted	# of Days	Qualifier
3RE*	02/06/15	02/25/15	19	J/UJ

*Use the original results for reporting purposes.

Initial Calibration

- All %RSD criteria were met.

Continuing Calibration

- All %D criteria were met.

Method Blank

- The method blanks were free of contamination.

Field Blank

- Field QC results are summarized below.

Blank ID	Compound	Conc. ug/L	Action Level ug/L	Qualifier	Affected Samples
MR06-EB020615	None - ND	-	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD sample exhibited acceptable %R and RPD values.

Laboratory Control Samples

- The LCS samples exhibited acceptable %R values except the following.

LCS ID	Compound	%R	Qualifier	Affected Samples
WG158519-2	14 of 16 Compounds	Low	J/UJ	All Soil Samples

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

Explosives				
Compound	MR06-SS90-IC-15A ug/kg	MR06-SS90D-IC-15A ug/kg	RPD	Qualifier
Nitroglycerin	450	380U	NC	None

GC Column Difference Results

- EDS Sample ID #2 exhibited nitroglycerin with a high %D value > 25% between columns, however, all results have already been qualified due to the LCS and no further qualifications were required.

Metals

Holding Times

- All samples were prepared and analyzed within 28 days for mercury and 180 days for all other metals.

Initial Calibration Verification

- All initial calibration criteria were met.

Continuing Calibration Verification

- All continuing calibration criteria were met.

Method Blank

- The method blanks exhibited the contamination.

Blank ID	Compound	Conc. mg/kg	Action Level mg/kg	Qualifier	Affected Samples
PBSIB10ICS1	Potassium	13	130	U	1, 3
	Sodium	5.8	58	U	
PBSIB10IMS1	Chromium	0.22	2.2	U	1, 3
	Cobalt	0.0062	0.062	U	
	Nickel	0.084	0.84	U	
	Selenium	0.059	0.59	U	
	Silver	0.021	0.21	U	
PBSIB11ICS1	Potassium	9.2	92.0	U	2
	Sodium	15.8	158.0	U	
PBSIB11IMS1	Chromium	0.24	2.40	U	2
	Cobalt	0.0068	0.0680	U	
	Nickel	0.088	0.880	U	
	Silver	0.013	0.130	U	

Blank ID	Compound	Conc. ug/L	Action Level ug/L	Qualifier	Affected Samples
PBWI09ICW2	Manganese	2.0	20.0	U	4
	Potassium	98	980	U	
	Sodium	58	580	U	
	Zinc	0.88	8.80	U	
PBWIB09IMW2	Chromium	1.5	15.0	U	4
	Nickel	0.18	1.80	U	
	Selenium	0.56	5.60	U	
	Silver	0.099	0.990	U	

Field Blank

- Field QC results are summarized below.

Blank ID	Compound	Conc. ug/L	Action Level mg/kg	Qualifier	Affected Samples
MR06-EB020615	Antimony	0.056	0.037	U	1, 2, 3
	Cadmium	0.037	0.025	U	2
	Calcium	14	9.3	None	All >10X
	Cobalt	0.086	0.057	None	See MB
	Copper	1.0	0.667	None	All >10X
	Magnesium	8.4	5.6	None	All >10X
	Vanadium	0.41	0.273	None	All >10X

ICP Interference Check Sample

- The ICP interference check sample exhibited acceptable %R values.

Laboratory Control Samples

- The LCS sample exhibited acceptable recoveries.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD sample exhibited acceptable %R and RPD values except the following.

MS/MSD Sample ID	Compound	MS %R/MSD %R/ RPD	Qualifier	Affected Samples
1	Aluminum	475.9%/494.5%/OK	None	4X Rule Applies
	Iron	411.2%/165.3%/OK	None	

ICP Serial Dilution

- ICP serial dilution percent differences (%D) were acceptable.

Compound Quantitation

- Several compounds were analyzed at a dilution due to high concentrations. The reporting limits were adjusted accordingly. No action was required.

Field Duplicate Sample Precision

- Field duplicate results are summarized below.

Metals				
Compound	MR06-SS90-IC-15A mg/kg	MR06-SS90D-IC-15A mg/kg	RPD	Qualifier
Aluminum	843	974	14%	None
Arsenic	0.15	0.18	18%	
Barium	2.49	2.67	7%	
Beryllium	0.013	0.011	7%	
Cadmium	0.122U	0.189	NC	
Calcium	204	207	1%	
Copper	4.02	3.33	19%	
Iron	533	654	20%	
Lead	3.47	4.21	19%	
Magnesium	27.7	31.6	13%	
Manganese	5.65	7.25	25%	
Mercury	0.0086	0.011	24%	
Thallium	0.014	0.0090	43%	
Vanadium	1.30	1.47	12%	
Zinc	11.8	10.3	14%	

Perchlorate

Holding Times

- All samples were analyzed within the recommended holding time of 28 days for perchlorate.

Initial Calibration Verification

- All initial calibration criteria were met.

Continuing Calibration Verification

- All continuing calibration criteria were met.

Method Blank

- The method blanks were free of contamination.

Field Blank

- Field QC results are summarized below.

Blank ID	Compound	Conc. ug/L	Action Level ug/kg	Qualifier	Affected Samples
MR06-EB020615	None - ND	-	-	-	-

Laboratory Control Samples

- The LCS sample exhibited acceptable recoveries.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD sample exhibited acceptable %R and RPD values.

Compound Quantitation

- All criteria were met.

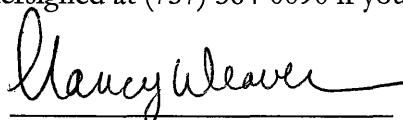
Field Duplicate Sample Precision

- Field duplicate results are summarized below.

Perchlorate				
Compound	MR06-SS90-IC-15A ug/kg	MR06-SS90D-IC-15A ug/kg	RPD	Qualifier
Perchlorate	0.10	0.17U	NC	None

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:



Dated: 3/27/15

Nancy Weaver
Senior Chemist

Data Qualifiers

- U = The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
- UJ = The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
- J = The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).
- J+ = The result is an estimated quantity, but the result may be biased high.
- J- = The result is an estimated quantity, but the result may be biased low.
- R = The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Report of Analytical Results

Client: CH2MHill
Lab ID: SI0808-2
Client ID: MR06-SS90-OC-15A
Project: Camp Lejeune UXO-06 CTO-WE4B
SDG: SI0808
Lab File ID: HIB10087.D

Sample Date: 06-FEB-15
Received Date: 07-FEB-15
Extract Date: 16-FEB-15
Extracted By: JMS
Extraction Method: SW846 8330
Lab Prep Batch: WG158519

Analysis Date: 17-FEB-15
Analyst: AC
Analysis Method: SW846 8330B
Matrix: SL
% Solids: 100
Report Date: 04-MAR-15

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
HMX	UL uT	47	ug/Kgdrywt	1	100	94.	8.1	47 BSL
RDX	UL	47	ug/Kgdrywt	1	100	94.	6.4	47
1,3,5-Trinitrobenzene	UL	47	ug/Kgdrywt	1	100	94.	6.3	47
1,3-Dinitrobenzene	UL	47	ug/Kgdrywt	1	100	94.	5.8	47
Tetryl	U	47	ug/Kgdrywt	1	100	94.	5.1	47.
Nitrobenzene	UL uT	47	ug/Kgdrywt	1	100	94.	21.	47 BSL
Nitroglycerin	UL	380	ug/Kgdrywt	1	800	760	120	380
2,4,6-Trinitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	6.3	47
4-Am-DNT	UL	47	ug/Kgdrywt	1	100	94.	16.	47
2-Am-DNT	UL	47	ug/Kgdrywt	1	100	94.	20.	47
2,6-Dinitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	25.	47
2,4-Dinitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	14.	47
2-Nitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	11.	47
4-Nitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	25.	47
3-Nitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	7.4	47
PETN	U	380	ug/Kgdrywt	1	800	760	100	380
1,2-Dinitrobenzene		106.	%					

NW 3/25/15

Katahdin Analytical Services A0000005

Report of Analytical Results

Client: CH2MHill
Lab ID: SI0808-4
Client ID: MR06-SS90-IC-15A
Project: Camp Lejeune UXO-06 CTO-WE4B
SDG: SI0808
Lab File ID: HIB10088.D

Sample Date: 06-FEB-15
Received Date: 07-FEB-15
Extract Date: 16-FEB-15
Extracted By: JMS
Extraction Method: SW846 8330
Lab Prep Batch: WG158519

Analysis Date: 17-FEB-15
Analyst: AC
Analysis Method: SW846 8330B
Matrix: SL
% Solids: 100
Report Date: 04-MAR-15

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
HMX	UL	49	ug/Kgdrywt	1	100	98.	8.4	49 <i>BSL</i>
RDX	UL	49	ug/Kgdrywt	1	100	98.	6.7	49
1,3,5-Trinitrobenzene	UL	49	ug/Kgdrywt	1	100	98.	6.6	49
1,3-Dinitrobenzene	UL	49	ug/Kgdrywt	1	100	98.	6.1	49
Tetryl	U	49	ug/Kgdrywt	1	100	98.	5.3	49.
Nitrobenzene	UL	49	ug/Kgdrywt	1	100	98.	22.	49 <i>BSL</i>
Nitroglycerin	X	450	ug/Kgdrywt	1	800	780	120	390
2,4,6-Trinitrotoluene	UL	49	ug/Kgdrywt	1	100	98.	6.6	49
4-Am-DNT	UL	49	ug/Kgdrywt	1	100	98.	17.	49
2-Am-DNT	UL	49	ug/Kgdrywt	1	100	98.	21.	49
2,6-Dinitrotoluene	UL	49	ug/Kgdrywt	1	100	98.	26.	49
2,4-Dinitrotoluene	UL	49	ug/Kgdrywt	1	100	98.	15.	49
2-Nitrotoluene	UL	49	ug/Kgdrywt	1	100	98.	12.	49
4-Nitrotoluene	UL	49	ug/Kgdrywt	1	100	98.	26.	49
3-Nitrotoluene	UL	49	ug/Kgdrywt	1	100	98.	7.8	49
PETN	U	390	ug/Kgdrywt	1	800	780	100	390
1,2-Dinitrobenzene		107.	%					

Report of Analytical Results

Client: CH2MHill
Lab ID: SI0808-6
Client ID: MR06-SS90D-IC-15A
Project: Camp Lejeune UXO-06 CTO-WE4B
SDG: SI0808
Lab File ID: HIB10089.D

Sample Date: 06-FEB-15
Received Date: 07-FEB-15
Extract Date: 16-FEB-15
Extracted By: JMS
Extraction Method: SW846 8330
Lab Prep Batch: WG158519

Analysis Date: 17-FEB-15
Analyst: AC
Analysis Method: SW846 8330B
Matrix: SL
% Solids: 100
Report Date: 04-MAR-15

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
HMX	UL u/J	47	ug/Kgdrywt	1	100	94.	8.1	47 BSL
RDX	UL	47	ug/Kgdrywt	1	100	94.	6.4	47
1,3,5-Trinitrobenzene	UL	47	ug/Kgdrywt	1	100	94.	6.3	47
1,3-Dinitrobenzene	UL	47	ug/Kgdrywt	1	100	94.	5.8	47
Tetryl	U	47	ug/Kgdrywt	1	100	94.	5.1	47.
Nitrobenzene	UL u/J	47	ug/Kgdrywt	1	100	94.	21.	47 BSL
Nitroglycerin	UL	380	ug/Kgdrywt	1	800	760	120	380
2,4,6-Trinitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	6.3	47
4-Am-DNT	UL	47	ug/Kgdrywt	1	100	94.	16.	47
2-Am-DNT	UL	47	ug/Kgdrywt	1	100	94.	20.	47
2,6-Dinitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	25.	47
2,4-Dinitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	14.	47
2-Nitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	11.	47
4-Nitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	25.	47
3-Nitrotoluene	UL	47	ug/Kgdrywt	1	100	94.	7.5	47
PETN	U	380	ug/Kgdrywt	1	800	760	100	380
1,2-Dinitrobenzene		106.	%					

Mar 25/15

Report of Analytical Results

Client: CH2MHill
Lab ID: SI0808-6RE2
Client ID: MR06-SS90D-IC-15A
Project: Camp Lejeune UXO-06 CTO-WE4B
SDG: SI0808
Lab File ID: HIB10127.D

Sample Date: 06-FEB-15
Received Date: 07-FEB-15
Extract Date: 25-FEB-15
Extracted By: JMS
Extraction Method: SW846 8330
Lab Prep Batch: WG158812

Analysis Date: 26-FEB-15
Analyst: AC
Analysis Method: SW846 8330B
Matrix: SL
% Solids: 100
Report Date: 04-MAR-15

Use original results

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
HMX	UUT	47	ug/Kgdrywt	1	100	94.	8.0	47. HT
RDX	U	47	ug/Kgdrywt	1	100	94.	6.4	47.
1,3,5-Trinitrobenzene	U	47	ug/Kgdrywt	1	100	94.	6.3	47.
1,3-Dinitrobenzene	U	47	ug/Kgdrywt	1	100	94.	5.8	47.
Tetryl	U	47	ug/Kgdrywt	1	100	94.	5.1	47.
Nitrobenzene	U	47	ug/Kgdrywt	1	100	94.	20.	47.
Nitroglycerin	U	370	ug/Kgdrywt	1	800	750	120	370
2,4,6-Trinitrotoluene	U	47	ug/Kgdrywt	1	100	94.	6.3	47.
4-Am-DNT	U	47	ug/Kgdrywt	1	100	94.	16.	47.
2-Am-DNT	U	47	ug/Kgdrywt	1	100	94.	20.	47.
2,6-Dinitrotoluene	U	47	ug/Kgdrywt	1	100	94.	25.	47.
2,4-Dinitrotoluene	U	47	ug/Kgdrywt	1	100	94.	14.	47.
2-Nitrotoluene	U	47	ug/Kgdrywt	1	100	94.	11.	47.
4-Nitrotoluene	U	47	ug/Kgdrywt	1	100	94.	25.	47.
3-Nitrotoluene	U	47	ug/Kgdrywt	1	100	94.	7.4	47.
PETN	U	370	ug/Kgdrywt	1	800	750	100	370
1,2-Dinitrobenzene		106.	%					

exclude

Report of Analytical Results

Client: CH2MHill
Lab ID: SI0808-7
Client ID: MR06-EB020615
Project: Camp Lejeune UXO-06 CTO-WE4B
SDG: SI0808
Lab File ID: HIB10061.D

Sample Date: 06-FEB-15
Received Date: 07-FEB-15
Extract Date: 10-FEB-15
Extracted By: JMS
Extraction Method: SW846 8330
Lab Prep Batch: WG158204

Analysis Date: 11-FEB-15
Analyst: AC
Analysis Method: SW846 8330B
Matrix: AQ
% Solids: NA
Report Date: 04-MAR-15

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
HMX	U	0.12	ug/L	1	.25	0.25	0.043	0.12
RDX	U	0.12	ug/L	1	.25	0.25	0.046	0.12
1,3,5-Trinitrobenzene	U	0.12	ug/L	1	.25	0.25	0.040	0.12
1,3-Dinitrobenzene	U	0.12	ug/L	1	.25	0.25	0.045	0.12
Tetryl	U	0.12	ug/L	1	.25	0.25	0.060	0.12
Nitrobenzene	U	0.12	ug/L	1	.25	0.25	0.071	0.12
Nitroglycerin	U	2.0	ug/L	1	4	4.0	0.67	2.0
2,4,6-Trinitrotoluene	U	0.12	ug/L	1	.25	0.25	0.064	0.12
4-Am-DNT	U	0.12	ug/L	1	.25	0.25	0.053	0.12
2-Am-DNT	U	0.12	ug/L	1	.25	0.25	0.038	0.12
2,6-Dinitrotoluene	U	0.12	ug/L	1	.25	0.25	0.056	0.12
2,4-Dinitrotoluene	U	0.12	ug/L	1	.25	0.25	0.052	0.12
2-Nitrotoluene	U	0.12	ug/L	1	.25	0.25	0.071	0.12
4-Nitrotoluene	U	0.12	ug/L	1	.25	0.25	0.060	0.12
3-Nitrotoluene	U	0.12	ug/L	1	.25	0.25	0.063	0.12
PETN	U	2.0	ug/L	1	4	4.0	0.58	2.0
1,2-Dinitrobenzene		111.	%					

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: MR06-SS90-OC-15A

Matrix: SOIL

SDG Name: SI0808

Percent Solids: 91.6

Lab Sample ID: SI0808-001

Concentration Units : mg/Kg drywt

CAS No.	Analyte	Concentration	ADJUSTED						
			C	Q	M	DF	LOQ	MDL	LOD
7429-90-5	ALUMINUM, TOTAL	822	X	P	1	22	0.53	7.5	
7440-36-0	ANTIMONY, TOTAL	0.037	0.027	J U	MS	5	0.075	0.015	0.037 EBL
7440-38-2	ARSENIC, TOTAL	0.11	J	MS	5	0.37	0.11	0.30	
7440-39-3	BARIUM, TOTAL	2.48		P	1	0.37	0.019	0.22	
7440-41-7	BERYLLIUM, TOTAL	0.0097	J	MS	5	0.075	0.0030	0.015	
7440-43-9	CADMUM, TOTAL	0.220		MS	5	0.075	0.0056	0.015	
7440-70-2	CALCIUM, TOTAL	156		P	1	7.5	1.3	6.0	
7440-47-3	CHROMIUM, TOTAL	1.80	U	MS	5	0.37	0.037	0.30 MBL	
7440-48-4	COBALT, TOTAL	0.0728	X U	MS	5	0.075	0.0041	0.022 MBL	
7440-50-8	COPPER, TOTAL	3.10		P	1	1.9	0.12	0.75	
7439-89-6	IRON, TOTAL	536	X	P	1	7.5	1.0	6.0	
7439-92-1	LEAD, TOTAL	3.94		P	1	0.37	0.065	0.30	
7439-95-4	MAGNESIUM, TOTAL	26.6		P	1	7.5	0.51	6.0	
7439-96-5	MANGANESE, TOTAL	6.81	B	P	1	0.37	0.12	0.30	
7439-97-6	MERCURY, TOTAL	0.011	J	CV	1	0.032	0.0049	0.016	
7440-02-0	NICKEL, TOTAL	0.662	U X	MS	5	0.15	0.020	0.090 MBL	
7440-09-7	POTASSIUM, TOTAL	45.0	J U	P	1	75	2.2	37	
7782-49-2	SELENIUM, TOTAL	0.22	0.040	J U	MS	5	0.37	0.029	0.22
7440-22-4	SILVER, TOTAL	0.030	0.019	J U	MS	5	0.075	0.0049	0.030
7440-23-5	SODIUM, TOTAL	37	10 J U	P	1	75	1.1	37	
7440-28-0	THALLIUM, TOTAL	0.0074	J	MS	5	0.075	0.0071	0.030	
7440-62-2	VANADIUM, TOTAL	1.25		P	1	0.75	0.028	0.30	
7440-66-6	ZINC, TOTAL	10.8		P	1	1.5	0.13	0.75	

Comments:

FORM I - IN
MW 3/25/15

Katahdin Analytical Services 4000005

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: MR06-SS90-IC-15A

Matrix: SOIL

SDG Name: SI0808

Percent Solids: 91.7

Lab Sample ID: SI0808-003

Concentration Units : mg/Kg drywt

CAS No.	Analyte	Concentration	ADJUSTED						
			C	Q	M	DF	LOQ	MDL	LOD
7429-90-5	ALUMINUM, TOTAL	843	P	1	26	0.61	8.6		
7440-36-0	ANTIMONY, TOTAL	0.043 0.034 J u	MS	5	0.086	0.017	0.043	EBL	
7440-38-2	ARSENIC, TOTAL	0.15 J	MS	5	0.43	0.13	0.34		
7440-39-3	BARIUM, TOTAL	2.49	P	1	0.43	0.021	0.26		
7440-41-7	BERYLLIUM, TOTAL	0.013 J	MS	5	0.086	0.0035	0.017		
7440-43-9	CADMUM, TOTAL	0.122 u	MS	5	0.086	0.0064	0.017	EBL	
7440-70-2	CALCIUM, TOTAL	204	P	1	8.6	1.5	6.9		
7440-47-3	CHROMIUM, TOTAL	1.40 u	MS	5	0.43	0.042	0.34 MBL		
7440-48-4	COBALT, TOTAL	0.0880 u	MS	5	0.086	0.0047	0.026 MBL		
7440-50-8	COPPER, TOTAL	4.02	P	1	2.1	0.14	0.86		
7439-89-6	IRON, TOTAL	533	P	1	8.6	1.2	6.9		
7439-92-1	LEAD, TOTAL	3.47	P	1	0.43	0.075	0.34		
7439-95-4	MAGNESIUM, TOTAL	27.7	P	1	8.6	0.58	6.9		
7439-96-5	MANGANESE, TOTAL	5.65	P	1	0.43	0.14	0.34		
7439-97-6	MERCURY, TOTAL	0.0086 J	CV	1	0.032	0.0050	0.017		
7440-02-0	NICKEL, TOTAL	0.356 u	MS	5	0.17	0.023	0.10 MBL		
7440-09-7	POTASSIUM, TOTAL	43 24 J u	P	1	86	2.5	43 MBL		
7782-49-2	SELENIUM, TOTAL	0.26 U	MS	5	0.43	0.033	0.26		
7440-22-4	SILVER, TOTAL	0.034 0.021 J u	MS	5	0.086	0.0056	0.034 MBL		
7440-23-5	SODIUM, TOTAL	43 4.2 J u	P	1	86	1.3	43 MBL		
7440-28-0	THALLIUM, TOTAL	0.014 J	MS	5	0.086	0.0082	0.034		
7440-62-2	VANADIUM, TOTAL	1.30	P	1	0.86	0.032	0.34		
7440-66-6	ZINC, TOTAL	11.8	P	1	1.7	0.15	0.86		

Comments:

FORM I - IN

MW 3/25/15

Katahdin Analytical Services 4000006

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: MR06-SS90D-IC-15A

Matrix: SOIL

SDG Name: SI0808

Percent Solids: 91.3

Lab Sample ID: SI0808-005

Concentration Units : mg/Kg drywt

CAS No.	Analyte	Concentration	ADJUSTED						
			C	Q	M	DF	LOQ	MDL	LOD
7429-90-5	ALUMINUM, TOTAL	974	P	1	23	0.56	7.8		
7440-36-0	ANTIMONY, TOTAL	0.031	0.033	L	MS	5	0.078	0.016	0.039 EBL
7440-38-2	ARSENIC, TOTAL	0.18	J	MS	5	0.39	0.12	0.31	
7440-39-3	BARIUM, TOTAL	2.67	P	1	0.39	0.020	0.23		
7440-41-7	BERYLLIUM, TOTAL	0.011	J	MS	5	0.078	0.0032	0.016	
7440-43-9	CADMIUM, TOTAL	0.189	MS	5	0.078	0.0059	0.016		
7440-70-2	CALCIUM, TOTAL	207	P	1	7.8	1.4	6.3		
7440-47-3	CHROMIUM, TOTAL	1.66	L	MS	5	0.39	0.038	0.31 MBL	
7440-48-4	COBALT, TOTAL	0.0953	u	MS	5	0.078	0.0043	0.023 MBL	
7440-50-8	COPPER, TOTAL	3.33	P	1	2.0	0.13	0.78		
7439-89-6	IRON, TOTAL	654	P	1	7.8	1.1	6.3		
7439-92-1	LEAD, TOTAL	4.21	P	1	0.39	0.068	0.31		
7439-95-4	MAGNESIUM, TOTAL	31.6	P	1	7.8	0.53	6.3		
7439-96-5	MANGANESE, TOTAL	7.25	J	P	1	0.39	0.13	0.31	
7439-97-6	MERCURY, TOTAL	0.011	J	CV	1	0.033	0.0051	0.017	
7440-02-0	NICKEL, TOTAL	0.564	u	MS	5	0.16	0.021	0.094 MBL	
7440-09-7	POTASSIUM, TOTAL	42.9	x u	P	1	78	2.3	39	
7782-49-2	SELENIUM, TOTAL	0.23	0.031	x u	MS	5	0.39	0.031	0.23
7440-22-4	SILVER, TOTAL	0.031	0.029	x u	MS	5	0.078	0.0051	0.031
7440-23-5	SODIUM, TOTAL	39	2.8	x u	P	1	78	1.2	39
7440-28-0	THALLIUM, TOTAL	0.0090	J	MS	5	0.078	0.0074	0.031	
7440-62-2	VANADIUM, TOTAL	1.47	P	1	0.78	0.029	0.31		
7440-66-6	ZINC, TOTAL	10.3	P	1	1.6	0.13	0.78		

Comments:

FORM I - IN

MW 3/25/15

Katahdin Analytical Services 4000007

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: MR06-EB020615

Matrix: WATER

SDG Name: SI0808

Percent Solids: 0.00

Lab Sample ID: SI0808-007

Concentration Units : ug/L

CAS No.	Analyte	Concentration	ADJUSTED						
			C	Q	M	DF	LOQ	MDL	LOD
7429-90-5	ALUMINUM, TOTAL	100 U	P	1	300	15.	100		
7440-36-0	ANTIMONY, TOTAL	0.056 J	MS	5	1.0	0.055	0.50		
7440-38-2	ARSENIC, TOTAL	4.0 U	MS	5	5.0	2.3	4.0		
7440-39-3	BARIUM, TOTAL	3.0 U	P	1	5.0	0.23	3.0		
7440-41-7	BERYLLIUM, TOTAL	0.20 U	MS	5	1.0	0.034	0.20		
7440-43-9	CADMUM, TOTAL	0.037 J	MS	5	1.0	0.030	0.20		
7440-70-2	CALCIUM, TOTAL	14 J	P	1	100	11.	80		
7440-47-3	CHROMIUM, TOTAL	4.0 1.7 J u	MS	5	5.0	0.22	4.0 MBL		
7440-48-4	COBALT, TOTAL	0.086 J	MS	5	1.0	0.060	0.30		
7440-50-8	COPPER, TOTAL	1.0 J	P	1	25	0.63	10		
7439-89-6	IRON, TOTAL	80 U	P	1	100	5.4	80		
7439-92-1	LEAD, TOTAL	4.0 U	P	1	5.0	1.1	4.0		
7439-95-4	MAGNESIUM, TOTAL	8.4 J	P	1	100	7.8	80		
7439-96-5	MANGANESE, TOTAL	4.0 3.1 J u	P	1	5.0	1.1	4.0 MBL		
7439-97-6	MERCURY, TOTAL	0.10 U	CV	1	0.20	0.013	0.10		
7440-02-0	NICKEL, TOTAL	1.2 0.37 J u	MS	5	2.0	0.15	1.2 MBL		
7440-09-7	POTASSIUM, TOTAL	500 95 J u	P	1	1000	41.	500 MBL		
7782-49-2	SELENIUM, TOTAL	3.0 0.54 J u	MS	5	5.0	0.19	3.0 MBL		
7440-22-4	SILVER, TOTAL	0.40 0.10 J u	MS	5	1.0	0.050	0.40 MBL		
7440-23-5	SODIUM, TOTAL	500 120 J u	P	1	1000	24.	500 MBL		
7440-28-0	THALLIUM, TOTAL	0.40 U	MS	5	1.0	0.060	0.40		
7440-62-2	VANADIUM, TOTAL	0.41 J	P	1	10	0.23	4.0		
7440-66-6	ZINC, TOTAL	10 0.96 J u	P	1	20	0.72	10 MBL		

Comments:

FORM I - IN

MW 312515

Katahdin Analytical Services 4000008

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-26645-1
SDG No.: 200-26645
Client Sample ID: MR06-SS90-OC-15A Lab Sample ID: 200-26645-1
Matrix: Solid (Soluble) Lab File ID: P021115A_12.d
Analysis Method: 6850 Date Collected: 02/06/2015 11:30
Extraction Method: Date Extracted:
Sample wt/vol: 10 (mL) Date Analyzed: 02/11/2015 16:48
Con. Extract Vol.: Dilution Factor: 1
Injection Volume: 100 (uL) GC Column: IC-Pak AnionH/R ID: 4.6 (mm)
% Moisture: 9.2 GPC Cleanup: (Y/N) N
Analysis Batch No.: 84461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.17	U	0.85	0.17	0.079

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-26645-1
 SDG No.: 200-26645
 Client Sample ID: MR06-SS90-IC-15A Lab Sample ID: 200-26645-2
 Matrix: Solid (Soluble) Lab File ID: P021115A_15.d
 Analysis Method: 6850 Date Collected: 02/06/2015 12:00
 Extraction Method: Date Extracted:
 Sample wt/vol: 10 (mL) Date Analyzed: 02/11/2015 17:34
 Con. Extract Vol.: Dilution Factor: 1
 Injection Volume: 100 (uL) GC Column: IC-Pak AnionH/R ID: 4.6 (mm)
 % Moisture: 8.1 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 84461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.10	J M	0.86	0.17	0.080

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-26645-1
 SDG No.: 200-26645
 Client Sample ID: MR06-SS90D-IC-15A Lab Sample ID: 200-26645-3
 Matrix: Solid (Soluble) Lab File ID: P021115A_16.d
 Analysis Method: 6850 Date Collected: 02/06/2015 12:05
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 10 (mL) Date Analyzed: 02/11/2015 17:50
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 100 (uL) GC Column: IC-Pak AnionH/R ID: 4.6 (mm)
 % Moisture: 8.7 GPC Cleanup: (Y/N) N
 Analysis Batch No.: 84461 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.17	U	0.87	0.17	0.080

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington

Job No.: 200-26645-1

SDG No.: 200-26645

Client Sample ID: MR06-EB020615

Lab Sample ID: 200-26645-4

Matrix: Water

Lab File ID: P021115A_05.d

Analysis Method: 6850

Date Collected: 02/06/2015 11:30

Extraction Method: _____

Date Extracted: _____

Sample wt/vol: 10 (mL)

Date Analyzed: 02/11/2015 15:01

Con. Extract Vol.: _____

Dilution Factor: 1

Injection Volume: 100 (uL)

GC Column: IC-Pak AnionH/R ID: 4.6 (mm)

% Moisture: _____

GPC Cleanup: (Y/N) N

Analysis Batch No.: 84461

Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
14797-73-0	Perchlorate	0.040	U	0.20	0.040	0.019